Logic for Philosophy

PHIL 3320, Ted Sider, Fall 2014
GS 142, T/R 11:40–12:55
office hrs R 1:30–2:30 & by appt

The goal of this course is "logic literacy". Contemporary philosophy is steeped in logic: to read journal articles and take part in discussions, one needs to know a certain amount of logic. We will study i) the basic techniques of logic, including syntax, semantics, proof theory, metalogic, and a bit of philosophy of logic; and ii) a number of extensions of standard logic that are important in philosophy (for example, intuitionist logic, modal logic, counterfactuals). The course will be more broad than deep: we will examine many different systems, but will not spend a lot of time proving difficult metalogical results about these systems (except for completeness in propositional logic and modal propositional logic.)

Prerequisite

PHIL 2310. I'll be liberal about exceptions, especially given a strong background in mathematics. But be forewarned that this course is a lot harder than (and very different from) introductory logic.

Readings

The course text is my *Logic for Philosophy*, available at the Campus Store.

Requirements

Two exams (70%), plus periodic homework assignments (30%). The first exam will be on October 21; the second on Thursday, December 11, at 9:00am (during finals week). Homework assignments will be posted on the course web site:

`http://tedsider.org/teaching/lfp/lfp_course.html`

You must do your homework completely on your own; no working in groups. If you get stuck on a problem, you can ask me for a hint. You can email them to me or turn them in on paper. Late homework will be penalized.

Schedule (dates to be announced in class)

- Basics of logic
- Standard propositional logic: syntax, semantics, axioms
- Nonstandard propositional logic: three-valued logic, supervaluations
- Standard predicate logic: syntax, semantics
- Additions to standard predicate logic: identity, function symbols, generalized quantifiers, second-order logic; free logic
- Propositional modal logic: syntax, semantics, axioms, soundness, completeness
- Variations on propositional modal logic: semantics for tense logic
- Counterfactual conditionals: Stalnaker, Lewis
- Quantified modal logic: syntax, semantics
- Two-dimensional modal logic